Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

SHOUT
SHARE
IT

UNITED STATES DEPARTMENT OF AGRICULTURE

DEPARTMENT BULLETIN No. 1441

Washington, D. C. ▼ November, 1926

LIBRARY
U.S.D.A.
BUREAU OF
HOME ECONOMICS

METHODS AND PRACTICES OF RETAILING MEAT

By

W. C. DAVIS, Assistant Chief Marketing Specialist
Bureau of Agricultural Economics

CONTENTS

	Page
Factors Studied	2
Number of Stores in Relation to Population	2
Location of Store	2
Types of Stores	3
Relative Efficiency of Different Types of Retail Meat Stores	7
Practical Knowledge of Proprietor	7
Sources of Supply and Methods of Buying	9
Facilities and Equipment	10
Sanitation	11
Local Inspection	12
Bookkeeping	12
Salesmanship and Selling Practices	13
Misleading Practices and Deception	13
Frequency of Turnover	15
Cutting Tests	15
Disproportionate Demand for Cuts	16
Spread Between Wholesale Cost and Retail Prices	17
Minor Factors in Retail Trade	20
Recommendations	21

WASHINGTON
GOVERNMENT PRINTING OFFICE
1926

UNITED STATES DEPARTMENT OF AGRICULTURE

DEPARTMENT BULLETIN No. 1441

Washington, D. C. November, 1926

METHODS AND PRACTICES OF RETAILING MEAT[1]

By W. C. Davis, *Assistant Chief Marketing Specialist, Bureau of Agricultural Economics*

CONTENTS

	Page
Factors studied	2
Number of stores in relation to population	2
Location of store	2
Types of stores	3
Credit-and-delivery or service stores	3
Cash-and-carry stores	4
Peddler wagon routes	5
Public markets and centralized market areas	5
Chinese retail meat markets	6
Relative efficiency of different types of retail meat stores	7
Practical knowledge of proprietor	7
Sources of supply and methods of buying	9
Facilities and equipment	10
Sanitation	11
Local inspection	12
Bookkeeping	12
Salesmanship and selling practices	13
Misleading practices and deception	13
Frequency of turnover	15
Cutting tests	15
Disproportionate demand for cuts	16
Spread between wholesale cost and retail prices	17
Minor factors in retail trade	20
Recommendations	21

This study of methods and practices of retailing meats was made in 20 cities and towns in 1924 and 1925. These cities were selected according to geographical locations, and consideration was given to the character or type of the predominating industry or sources of income in each case. The cities and towns included in the study are New Haven, Conn.; New York and Binghamton, N. Y.; Baltimore, Md.; Washington, D. C.; Jacksonville, Fla.; Birmingham, Ala.; New Orleans, La.; Oklahoma City, Okla.; Cleveland, Ohio; Detroit, Mich.; Minneapolis, Minn.; Chicago, Ill.; Lincoln, Nebr.; Denver, Colo.; Salt Lake City, Utah; Seattle, Wash.; Portland, Oreg.; San Francisco, Oakland, and Los Angeles, Calif. (Fig. 1.)

The total number of stores embraced in the study is 1,404 and includes credit-and-delivery stores; cash-and-carry stores (including both small and large chain store systems), combination stores, straight meat markets, public markets, peddler wagon routes, and curb wagon stands. Of the 1,400 stores visited about 600 belonged to chain systems and 800 were independent shops.

[1] A survey of the retail marketing of meat was provided for by Congress in the act making appropriations for the United States Department of Agriculture for the fiscal year 1924–25. Further appropriation for this work was provided for the year 1925–26. The survey was divided into three parts: (1) Methods and practices, (2) margins, expenses and profits, and (3) consumer habits and preferences in the purchase and consumption of meat. A study of these factors and their influence upon the market for meat constituted the general plan as a whole. The first part relating to methods and practices is covered in this bulletin. The second part of the study is reported in Department Bulletin No. 1442 and the third part in Department Bulletin No. 1443.

15285°—26——1

FACTORS STUDIED

The factors studied were: Number of stores in relation to population, location of store, type of store, volume of business, character of business, practical knowledge of proprietor, sources of supplies and method of buying, facilities and equipment, sanitation, bookkeeping, salesmanship, advertising and other selling practices, misleading practices and deception (including displays, short weighing, overcharging, and substitution), frequency of turnover, price determinations, disproportionate demand for different cuts of meats, spread between wholesale costs and retail prices, and numerous factors of lesser importance which exert an influence on the industry.

NUMBER OF STORES IN RELATION TO POPULATION

In a study of the retail meat industry in 28 cities in various parts of the United States during 1919 and 1920 the average number of persons per store at that time was found to be 821. In this study the

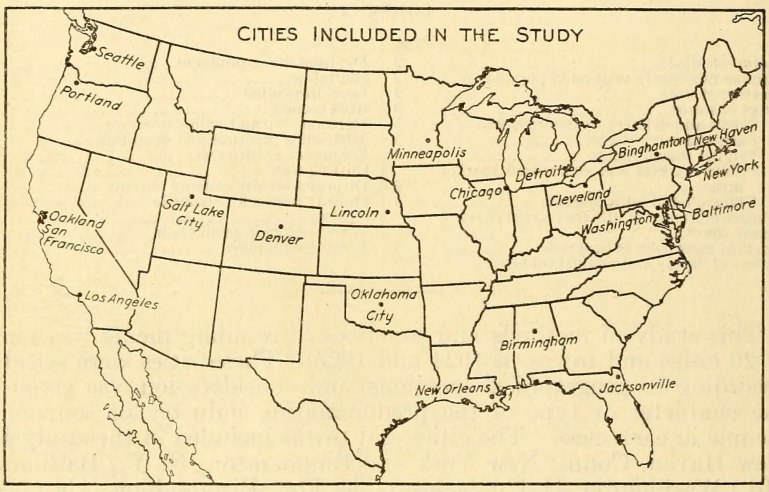

FIG. 1.—Extent of study from standpoint of geographical location

number per store in different cities ranged from 300 to 700 persons per store. New York City, for instance, with an estimated population of 6,000,000, has 13,000 retail meat markets, or 1 market to 462 persons, according to records of the license bureau of that city. Chicago, with an estimated population of 3,000,000, had 7,000 licensed retail meat dealers in 1925, or 1 market to 429 persons.

LOCATION OF STORE

Location of store in the first place was found to be determined largely by character of business or type of market to be operated. Other than this, location is of minor importance, provided density of population is given due consideration in choosing it. The cash-and-carry stores and cash-and-delivery stores, whose customers are to some extent transient in character, depend largely upon convenience and accessibility of location to attract trade. These stores,

therefore, usually are located on main thoroughfares, preferably on street-car lines in down-town business districts and at transfer points. The service stores do not depend to the same extent upon location for drawing trade but rely to a great degree upon the services of delivery and credit to attract trade. These stores are therefore found in residential or semibusiness districts where rents are lower.

TYPES OF STORES

Types of stores include the neighborhood store and the public market, the cash-and-carry single store, cash-and-carry local chain store, and cash-and-carry national chain store. Some of the latter perform a delivery service, but in such cases a separate charge is usually made for delivery. Isolated cases were found where delivery service was included with the price of meats. In such cases customers desiring delivery service paid slightly higher prices. Stores

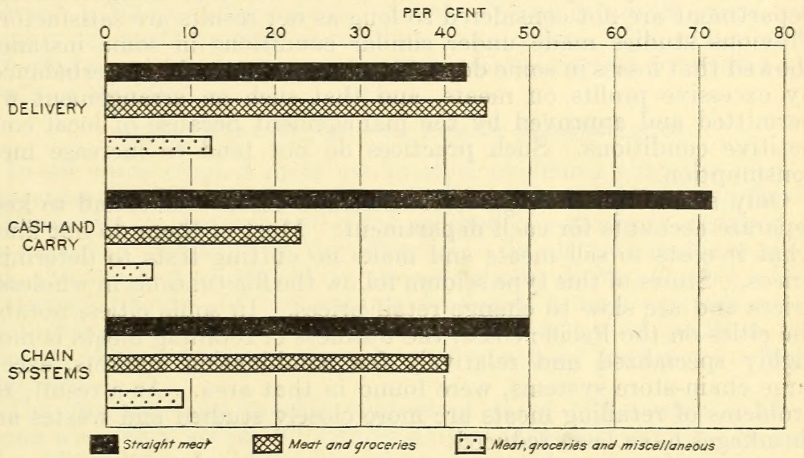

FIG. 2.—Percentage grouping of the different types of retail stores according to products handled. In the delivery group 58 per cent handled meats and other food products, whereas in the cash-and-carry group 71 per cent handled meats only. In the chain systems approximately 50 per cent handled meats only; the other 50 per cent handled meats and other food products

of this type are classified as cash-and-delivery and are only a minor factor in retail meat distribution.

In all cities there had been a marked increase in the number of cash-and-carry meat markets during the last 10 years. Many of these are local chain systems, comprising 3 to 15 units, and a large percentage are individual or single markets whose owners were formerly operators of credit-and-delivery markets. Economies brought about by changes in buying habits of consumers, losses resulting from credit accounts, and greater competition of large retail operators which practically forced many credit-and-delivery markets to change their methods, were given as reasons for the change.

CREDIT-AND-DELIVERY OR SERVICE STORES

Service stores are usually the type of retail market often referred to as the "corner grocery." The larger number are of the combination type and handle meats, groceries, fruits, and vegetables, but

there are many straight meat markets operated almost entirely on the credit-and-delivery basis. They are features in retail meat distribution in practically all Pacific coast cities but are not prevalent elsewhere.

This survey showed a large percentage of credit-and-delivery stores operated successfully and apparently economically in medium to high-class residential districts in all cities. Their customers are mostly from the moderately well to do and those whose means are ample. These classes want quality and service in connection with their daily purchases, and economies in buying are not of first importance. Combination grocery and meat markets and straight meat markets of credit-and-delivery type, that cater to these classes as a rule, handle only the better grades of meat.

In most cities service stores are of the combination type and handle groceries, fruits, vegetables, and meats. A large number of these stores were found to have no system by which to measure their cost of operation by departments. Losses or excessive margins in any department are not considered so long as net results are satisfactory. Previous studies made under similar conditions in some instances showed that losses in some departments were more than overbalanced by excessive profits on meats, and that such an arrangement was permitted and approved by the management because of local competitive conditions. Such practices do not tend to increase meat consumption.

Only a small percentage of combination stores was found to keep separate accounts for each department. Most of them do not know what it costs to sell meats and make no cutting tests to determine prices. Stores of this type seldom follow the fluctuations in wholesale prices and are slow to change retail prices. In some cities, notably the cities on the Pacific coast, the business of retailing meats is more highly specialized and relatively few combination markets, except large chain-store systems, were found in that area. As a result, the problems of retailing meats are more closely studied and wastes and shrinkages have been reduced.

CASH-AND-CARRY STORES

There are at least four distinct types of cash-and-carry stores. They are represented by the single or individual meat market, the local chain meat markets, the local chain combination grocery and meat market, and the large or national chain-store system. Each of these types was studied, together with methods of operating.

Aside from advantage gained by the larger operators through centralized purchasing and distribution the types are all on the same basis. The principle on which stores of these types are operated in some cases lowers the cost of meats to consumers, but because of consumers' lack of knowledge of differences in quality of meats and because of the transient character of customers who patronize such stores opportunities for deception are increased. The principle, "Cash at time of sale," on which these stores are operated sometimes influences packers and wholesalers to extend credit for limited time and amount in cases where there is neither moral nor financial responsibility. The same applies to many market-fixture and equipment firms, who sometimes require only a nominal sum as first payment.

Practically all of the kinds of misleading practices that are found in the retail meat business were found in the cash-and-carry type of stores and in all of these instances they were confined to single or individual markets and to local chain systems. On the other hand, numerous single cash-and-carry stores were studied that are a real credit to the industry. They know their operating costs in detail, sell what they advertise, determine selling prices by frequent cutting tests, and keep their records always accessible. They are genuine merchants and practice salesmanship of a high type.

PEDDLER WAGON ROUTES

The retail distribution of meats by peddler wagons is of relatively minor importance and can in no case, among the cities studied, be considered a significant factor even locally. A few such systems are in operation on a limited scale. The routes usually traverse urban sections and cover from 40 to 50 miles a day. In some instances ice is used for refrigeration, but in most cases observed the meats are carried without refrigeration. As a rule sanitation is poor, and quality of meats handled is medium to common. The routes serve laboring people, as a rule. Cash transactions prevail although some credit is extended.

PUBLIC MARKETS AND CENTRALIZED MARKET AREAS

In all cities studied there are marked evidences that the plan of concentrating retail food markets in limited areas is gaining favor. The success of the cash-and-carry method is commonly assigned as an important influence in this direction. In all such districts studied, the method employed is almost wholly cash-and-carry. The grouping together of the various food-distributing agencies, each comprising many units, not only creates wholesome competition, but because of the added convenience tends to attract consumers in large numbers.

Ten markets and market centers of these types were studied. Some were very successful, others only moderately so. In the case of public-market buildings owned by corporations in which space is leased to individuals, much depends upon the management and extent of control exercised over stall holders and their operations, and much depends upon the type, character, and ability of the dealers and their relations with the public. Constant daily sales and fairly uniform volume mean reduced overhead expenses and the possibility of relatively lower prices.

The efficient retailing of food products as conducted in a public market, located in one of the Pacific coast cities, deserves especial mention. This market is owned by a corporation which exercises unusually close supervision and control over all stand holders through a form of yearly lease. Applicants for space are judged for knowledge and ability and qualifications to conduct a retail business. They must be honest and progressive.

Lessees who fail to show satisfactory progress or fail to measure up to the standard set by the management are notified to vacate at expiration of lease. All space holders are required to keep accurate records of their business and submit monthly statements to the management. Monthly rentals based on yearly contracts are increased when financial statements of results justify. The management

exercises supervision over conduct of employees of stand holders. No loud or boisterous talking is permitted.

All advertising and advertisements of individual stall holders are submitted to the management and grouped for publication under the general heading and name of the market. No deceptive terms are permitted. To cover expense of advertising each stall holder is required to pay monthly a sum equal to 10 per cent of monthly rental. Advertisements appear weekly and each stall holder is allowed one advertisement each month.

Through this careful selection of occupants of stalls and practical supervision of their methods, the confidence and continued patronage of the buying public has been obtained by this market. The market is open every week day from 7 a. m. until 6 p. m., and is devoted entirely to retail purposes. The market is located in a down-town business section and convenient to several car lines. Advantages were gained through frequent turnovers. The prices charged, quality considered, were found to be uniformly low compared to stores located outside the market. All equipment is modern and ample refrigeration is available for storage boxes, display cases, and counters. Sanitation is all that could be desired.

CHINESE RETAIL MEAT MARKETS

The influence of recognized standards of living as practiced by different nationalities may be a competitive factor if centralization of some nationalities or races has occurred. Outside of some Pacific coast cities, the study showed no centralized activities of any foreign nationality in the retail meat field, and conditions generally were not shown to be affected by customs peculiar to nationality or race.

In Oakland and Los Angeles, however, markets operated exclusively by Chinese dealers are a considerable factor in local retail meat trade. Since 1915 their growth and expansion have been marked. At the time of this study 10 modern retail meat markets were apparently being operated successfully by Chinese dealers in Oakland. By their economical methods they have created a form of competition that can not be met by Americans. In the sale of fresh pork cuts they generally undersell slaughterers, and to a considerable extent they compete with wholesalers in local retail trade. Differences in labor costs and the longer working hours make this possible. All classes of meats are handled, but Chinese meat dealers specialize in pork and pork products. They do no slaughtering, but purchase carcasses in quantities from local packers. After delivery to the Chinese markets the carcasses are divided into cuts suitable for local trade. Most employees of Chinese markets have an interest in the market in which they work. If others are employed, their work averages 14 to 16 hours per day and they are paid a weekly wage ranging at the time of this study from $12 to $15. Compared to this, meat cutters and clerks in American-owned retail markets average 10 to 11 hours per day, and salaries usually ranged from $35 to $40 per week.

Generally no prices are displayed in the Chinese meat stores. Sanitation is good and all classes patronize the markets. Americans operating small markets in Oakland claimed they could not overcome the handicap, and that any material expansion of Chinese markets would force them out of business.

The operation of meat markets in Los Angeles by the Chinese, although not a considerable factor in that market as yet, has shown marked progress during the last five years. They cater to wholesale and restaurant trade, small store trade, and consumers. Conditions under which they operate are the same as in Oakland. Their stores in most cases are prominently located in the down-town sections.

Outside of the locality known as "Chinatown," Chinese meat markets are not an important factor in meat distribution of San Francisco. The study showed 10 Chinese meat markets in this area. All cater principally to people of their own nationality. There is a general lack of sanitation and little or no protection from flies and dirt. Because of the limited area in which they operate they are not considered an important factor in the retail meat distribution of San Francisco.

RELATIVE EFFICIENCY OF DIFFERENT TYPES OF RETAIL MEAT STORES

Efficiency was found in all types of stores and in both large and small. Efficiency measured by low cost of operation was found chiefly in the cash-and-carry plan of merchandising. Factors that have featured the growth of this system are: Logical elimination of service costs, increased volume, more frequent turnovers, lower price, and a thorough knowledge of all details. This study revealed the fact that efficiency in operation is not due to size, number of units, or large capital employed, but is due more particularly to the qualifications and practical knowledge of the management. This involves administrative ability, use of sufficient equipment, honest methods and truthful advertising, and a personality that inspires confidence.

The study further showed that the operator of the small store, if it has the proper supporting population, who has a practical knowledge of the business and possesses the other necessary qualifications, has practically the same chance as the large operators. The business of retailing meats is a technical one and requires a form of specialization not generally appreciated heretofore.

Without exception, all stores that were found to be inefficient to a marked degree are of the small or single type, and included straight meat markets and combination stores, whose operators lacked the fundamentals of modern merchandising.

The service store has a distinct field of operation in which location and environment are of prime importance. Despite the trend toward cash-and-carry in the retail meat trade, many service stores showed a business of continuously healthy growth.

PRACTICAL KNOWLEDGE OF PROPRIETOR

The survey showed that a very large percentage of men engaged in the retail meat business do not realize the value of knowledge of business in retailing meats. Many state that they are in the business because profits looked large. They possess only a general knowledge of the business, and know practically nothing of its requirements. They know little of quality in meats and can not distinguish sex or class, do not know the value of cutting tests as a basis for price determinations, and are guided by prices advertised by some local competitors. To a great extent their business is operated mostly on

guess. Because of inexperience it is evident that they lack initiative in methods of selling and display.

Men engaged in the business of retailing meats were interviewed who only a few months before had been in the business of mending shoes. Others were interviewed who had stepped from a machinist bench to position of meat cutter and operator of retail markets, and in one case a proprietor of a shoe-shining shop had changed to the actual operation of a meat market. None of these had had any previous knowledge of the meat business. Most of them were discouraged because of losses, and were looking for an opportunity to go back to their old lines of work. These, and numerous other cases were found where inexperience and lack of practical knowledge resulted in failure, discouragement, or dissatisfaction. Cost of operation was unknown and inventories were seldom taken.

Recognizing the effect such practices have on the meat industry in general, efficient retail meat dealers in the cities studied, strongly advocate a compulsory apprenticeship period and a license system based on definite qualifications of the applicant.

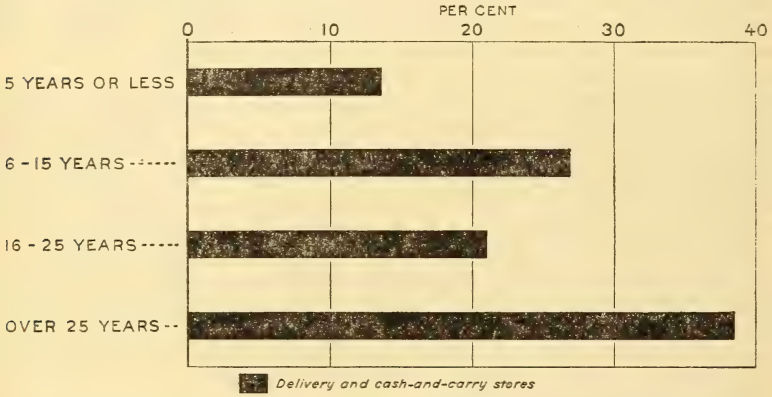

FIG. 3.—Percentage grouping of delivery and cash-and-carry stores according to number of years the owner or manager had been in the retail meat business. Questions relating to experience were asked in each case to determine the extent of practical knowledge possessed by the operator

Another type of dealer was found in all cities who fails to appreciate modern merchandising methods. They generally follow closely rather well-defined practices of their fathers from whom the business was inherited. A characteristic reply in defense of their antiquated methods is "my father did this for 40 years." In stores of this type records usually are absent or very incomplete. A striking illustration was found where a retail dealer, in business for over 30 years, was induced at the beginning of 1923 to install a simple bookkeeping system the first he had ever used. In all other respects his business was continued as before. At the close of 1923 his salary for the year was $1,200 and his profit and loss statement for the year showed a loss. Similar conditions had probably existed from year to year over a long period and yet the proprietor had thought he was making money.

On the other hand the results of thorough application of practical knowledge to a business handed down from father to sons, in which due recognition was given to the effect of economic changes on modes of living, was shown by a detailed study of an outstanding efficient

store. This store, located in a middle-western city, had been established for 42 years. The father is still active in the business. The store is of the combination type, handling groceries, fruits, vegetables, and meats. A bakery is operated in connection with the business. Every department is systematized and cost of operation by departments is known. Monthly inventories are a regular feature. There is no guess work. Insufficient or excessive margins and losses are determined quickly and nothing is left to chance. Practical knowledge is apparent in every operation and thoroughness is shown by results. In all respects this store is a striking example of efficiency in which salesmanship and ability are outstanding. Every part of the store appeals to discriminating customers, and fairness and honesty are apparent in the dealings.

This study indicates that lack of practical knowledge on the part of retail dealers is one of the undermining factors with which the industry has to deal, and there are even men of long experience in the business who do not appreciate the value of frequent cutting tests as a means of determining what prices should be.

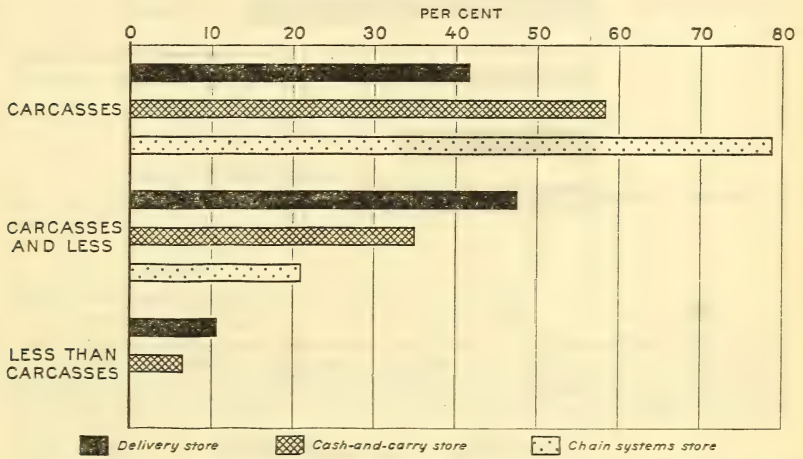

FIG. 4.—A large percentage of delivery stores purchased less than straight carcasses. Approximately 79 per cent of stores in chain systems purchased straight carcasses, whereas only 42 per cent of delivery stores purchased in such units. No chain stores were found that confined purchases to wholesale cuts only

SOURCES OF SUPPLY AND METHODS OF BUYING

Through efficient distribution to all consuming centers, under normal conditions meats are available in such quantities as local needs require. The source of supply was therefore not found to be a significant factor in present-day distribution from an economic standpoint. Slight concessions are usually made to quantity purchasers, but the difference is only a minor factor. The greatest problem in this respect for the retail dealer is to know how to make selections that meet the requirements of his customers. Methods of buying vary with the type of store and with the degree of knowledge of the business which the retailer possesses.

Practical operators who know the business, stress the importance of "buying right." This involves an intimate knowledge of market values and ability to judge quality and value. The importance of buying by personal selection is rated of first importance by efficient and successful merchants and experts are employed for this purpose. But many were found who place the judgment of the wholesaler or his representative above their own, depending on the wholesaler to make selections for them, and seldom visiting the wholesale houses. Such buying is handled by telephone largely. In some cases the "marking up" privilege on the part of the beef salesman is permitted by retailers. Such methods of buying tend to eliminate all competitive features and enable the wholesaler to act in the dual capacity of seller and buyer.

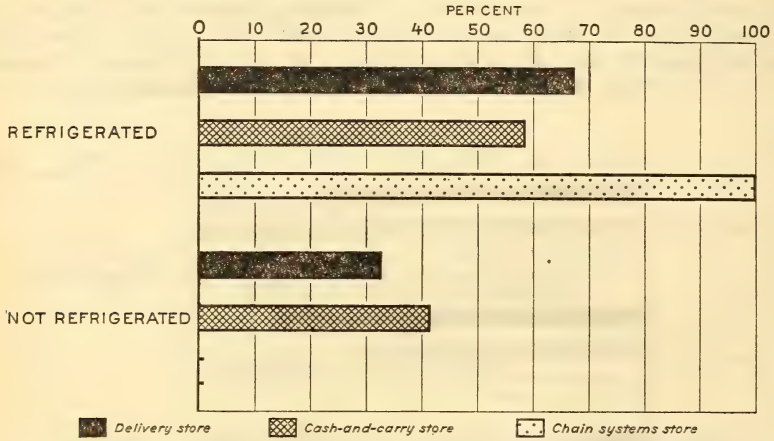

FIG. 5.—Percentage grouping of the various types of retail stores according to the practice of refrigerating counters. To some extent this applies also to mechanical refrigeration as compared to ice refrigeration. A smaller proportion of the cash-and-carry stores used refrigerated counters than either of the other two types of stores. All chain systems observed had refrigerated counters, but there may be some exception in other cities

FACILITIES AND EQUIPMENT

Modern equipment and adequate facilities commensurate with volume of business are essential to best results. Together they are an economic factor which tends to decrease waste and shrinkage. The survey showed that many in the retail-meat industry, even many who are efficient in methods of operation, do not fully appreciate the importance of these factors. But in Pacific coast cities it was found that nearly all meat markets, both large and small, are equipped with ice machines, refrigerated show cases, and to some extent with refrigerated show windows. Some cities in the North Central States come next in efficiency of equipment. High rents during recent years and uncertainty of renewals of existing leases in the large eastern cities were shown to be deterrent factors in the installation of modern refrigerating systems.

The importance of these factors from an economic standpoint and their relation to efficient operation should not be overlooked.

SANITATION

Sanitation should be an important factor in the retail meat trade. Its neglect is so unfortunate that especial attention was given to the question in this study, and considerable space must be devoted to it in this bulletin, although it should be emphasized at the outset that there are scores of outstanding examples of efficient sanitation in meat stores. Fresh meats require every possible safeguard because of their highly perishable nature and their susceptibility to contamination.

It is a noteworthy fact that this study of methods and practices showed in all cases that efficiency of operation and sanitation go hand in hand, and that these are usually accompanied by a high degree of salesmanship and ability. Efficient retail meat dealers in every city studied recognize and appreciate the value of effective sanitary regulations and cooperate fully with local authorities. They practice

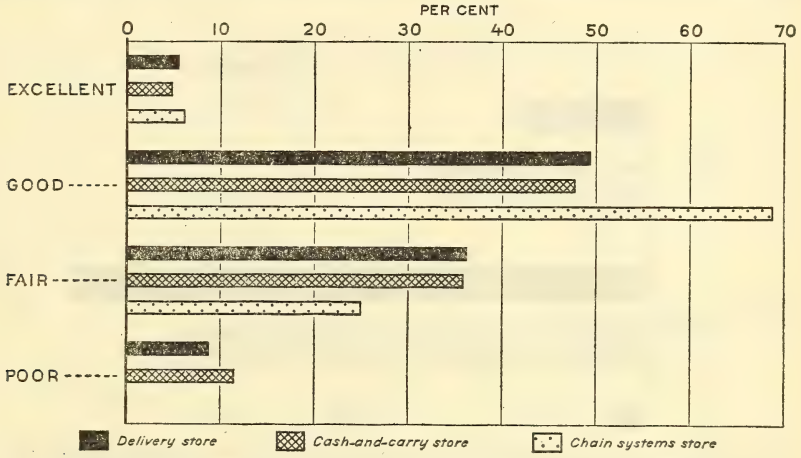

FIG. 6.—Percentage distribution of different types of stores according to the degree of sanitation. In order to classify all stores from standpoint of sanitation it was necessary to establish certain limits to denote the different degrees of sanitation. The limits apply to all stores alike and all comparisons between groups were on the same basis

sanitation and require their employees to practice it. Customers are invited to inspect every part of their stores. They welcome visits of local health officials. This strict practice of sanitary methods is an incentive to increased meat consumption. Consistency in practicing sanitation is profitable advertising. Cleanliness invites confidence and confidence is the bulwark of business success.

Most of the cities were found to have adequate laws or ordinances governing sanitary methods and practices of retail food distribution. Local officials of some of the boards of health, when consulted about their problems, stated that they are handicapped because of insufficient funds and salary limitations which prevent employment of men qualified for the work.

In many of the cities little or no attention has been given the physical fitness of meat cutters and clerks by local boards of health, and no control over communicable chronic diseases is exercised. Of the cities studied, not more than four have ordinances dealing with this question.

LOCAL INSPECTION

The matter of enforcing city and State ordinances governing the operation of local slaughtering and packing plants in a uniform and effective manner is a problem which concerns local health officials. In most such cases problems are involved which make adequate enforcement difficult. As a result, sanitation in local slaughter houses in a majority of cases studied lacked thoroughness. Deficiencies in most cases were not unknown to local health officials. The importance of safeguarding the health of a community can not be questioned and the value of uniformity in enforcement of adequate regulations needs serious consideration.

BOOKKEEPING

A general lack of adequate bookkeeping systems in a large percentage of the markets, and a total absence of any system in many mar-

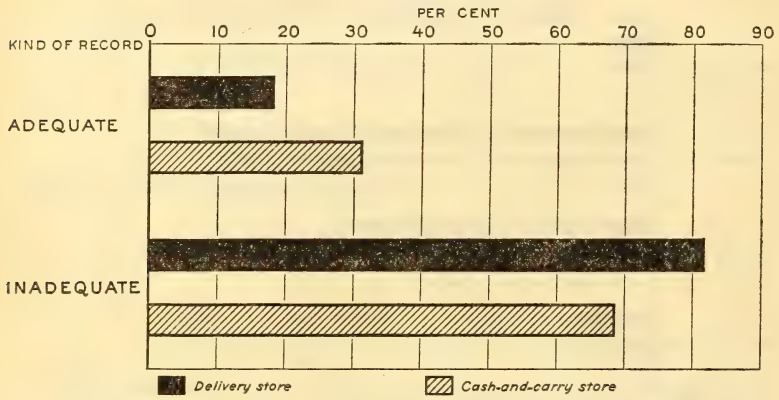

FIG. 7.—When the stores are grouped according to the kind of records, excluding the chain systems only 27 per cent were found in which records were considered adequate. In other words 73 per cent of stores, excluding chain stores, did not keep records which would show results. All chain systems were found to have complete records

kets, is an outstanding feature brought out by the study. Most of the small markets, including straight meat markets and combination stores, had no adequate accounts.

As in the case of sanitation, dependable and accurate records and accounts were found to go hand in hand with a practical knowledge of the business. Other than a record of receipts and disbursements from which to figure income-tax returns, a marked lack of any adequate system was found in small stores generally. Approximately 70 per cent of this type are trying to operate without records that will show results. Records of results is one of the prime requisites of an efficient store, and is the only method by which efficiency and progress can be measured. Without such a system no merchant can intelligently render a public service and meet competition.

In combination stores, separate costs covering operation of the meat department were seldom found. Many operators of such stores do not realize that all departments can not be operated on the same percentage of overhead, yet the variations in these respects are not generally considered.

SALESMANSHIP AND SELLING PRACTICES

The mental attitude of the employees and methods of approach to customers were found to reflect, in most cases, the type of employer. They are also an index of efficiency or inefficiency in the operation of the store, and to some extent are an indication of the methods and principles laid down by the management. The importance of tact and salesmanship in retail meat markets has not been given sufficient attention generally by operators.

Markets were studied where boys of high-school age were employed as clerks and salesman. In such cases they possessed little or no knowledge of the business, yet they were supposed to advise customers intelligently concerning the different kinds, cuts, and quantities of meats. Because of such methods, frequency of mistakes are increased, dissatisfaction results, and loss of customers follows. Efficiency in meat retailing requires an intimate knowledge of the

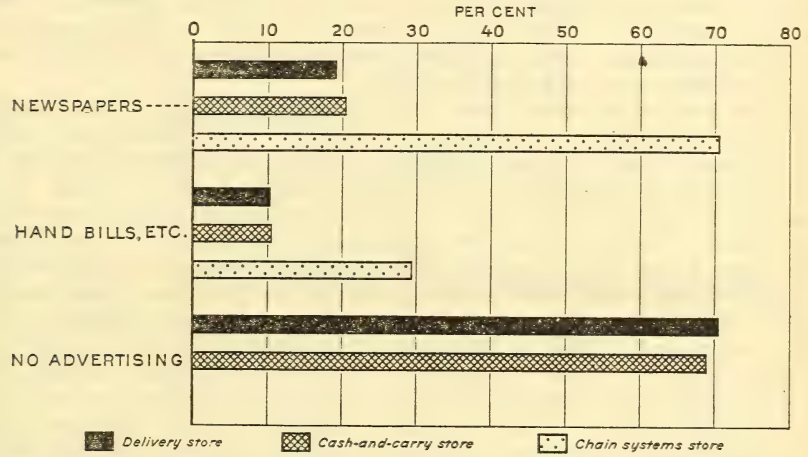

FIG. 8.—Percentage distribution of the various types of stores according to advertising practices. The chain systems all advertise in some way but only about 30 per cent of the delivery and cash-and-carry stores advertise in any form

business. Retail dealers should therefore give greater consideration to qualifications of employees.

Advertising on an extensive scale is not practiced generally by the retail-meat trade. Many dealers, especially those handling better grades of meat, stated that they do no advertising because consumers do not understand or know meats and from a comparison of their advertised prices with others handling poor grades but not so advertised, potential customers would probably not be able to draw fair conclusions.

MISLEADING PRACTICES AND DECEPTION

Misleading practices in the retail-meat trade form such an important retarding factor in the proper development of the industry that special attention was given to the subject in this study and special attention must be given to it in this bulletin, although it should be emphasized that the study seemed to show that such practices involve only a small percentage of retail-meat distributors in any city. But some were found in every city, and in all cases these dealers are very active and

are persistent advertisers. From a competitive standpoint, they influence to some extent the activities of certain other dealers who under normal trading conditions would prefer to deal honestly with the trade.

Such dealers are known locally as "clean-up" men. In all their contacts with the public, especially in advertising, they stress exceptionally high-quality meats handled, yet limit their purchases to meats of the most inferior quality. The fact that customers generally are uninformed regarding meats and meat cuts makes this deception possible. Because of the dissatisfaction which results this practice may tend gradually to decrease the demand for meats.

Local associations comprising both retail grocery men and meat dealers of exceptionally high character and ability are active in most of the cities studied. In every case they stand for honest methods and are doing effective work along educational lines, and are raising the standard of merchandising, but so far have found no effective means of combating this undesirable element in the retail-meat trade which is now known to be one of the undermining factors in the advancement of a large and necessary industry. The deceptive methods generally used comprise false advertising, misleading displays, substitution, and short weighing.

Terms used to represent meats of highest quality occupy prominent places in all their advertisements. Some of those commonly used are "Finest Meats Market Affords," "Meats of Highest Quality," "Prime Native Steer Beef," "Genuine Spring Lamb," "Milk Fed Veal," "Young Pig Pork," etc. Coupled with these terms are very low prices. In many cases investigated, prices quoted for preferred cuts were lower than the cost of live animals of grades comparable with the terms used. For instance, during the progress of this study stores in different cities advertised "lamb legs" from 12½ to 17½ cents per pound. Live lambs at the time were worth from 13 to 15 cents and their dressed carcasses were offered wholesale around 26 cents. During the period when live hogs were costing around 14 cents, "pork sausage" was offered freely at 2 pounds for 25 cents, and, in at least two cities, at 3 pounds for 25 cents. This sausage was made from beef suet, beef fat, tripe, and cereal. In such stores, in every case the meat actually being offered for sale was very inferior to that advertised. Common and medium grades of steer beef, cow beef, or bull beef were offered as prime beef; mutton of low quality or goat was offered for lamb; heavy carcasses from grass calves were offered as milk-fed veal, and cuts from stags and old sows were sold as young pig pork.

To the uninitiated, misleading displays are the same as false advertising except that the product or article is used in connection with a product which has similar characteristics but is of lower value. The most common display of meats designed to mislead the public are center cuts of pork loins and end cuts displayed on same platter. The price cards "center cuts," but end cuts are supplied. The same applies to loin lamb, or lamb rib chops and shoulder chops. In some instances picnic shoulders were found displayed and placarded as "picnic ham" and surrounded by genuine hams. Relatively low prices are used in all such displays. Window displays of retail cuts of beef of good quality were found marked at unusually low prices, quality considered, but in the store beef of very low grade was offered, in most instances not worth the asking price.

Short weighing and over charging frequently are practiced by such dealers. Price cards which include fractions of cents are displayed prominently. After the customer selects a piece of meat the clerk places it on the scales and quickly announces a total amount but not the weight. Some dealers of this type admitted they used fractions on their price cards because they are confusing to the average person. In case of doubt as to the correctness of the transaction the customer hesitates to question it.

FREQUENCY OF TURNOVER

The importance of frequency of turnover as a factor from a profit and loss standpoint is not fully understood and appreciated by all those engaged in the retail meat business. Quantity buying without a proportionate selling volume is dangerous. Losses instead of profits are frequently incurred by such practices. Deterioration and shrinkage of a highly perishable product must be reckoned with.

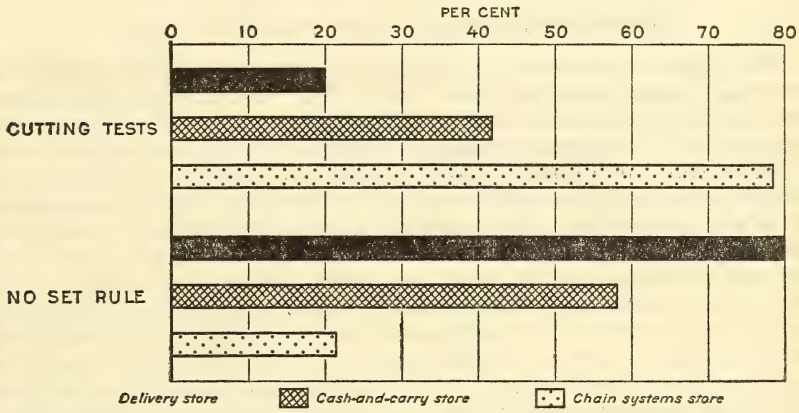

FIG. 9.—When the various stores are scored according to methods of making cutting tests, considerable variation is noted. The efficiency of the stores in the chain system in this respect is in striking contrast to the stores in the other groups. Frequent cutting tests to determine what selling prices should be if they are to return a profit are a feature of chain-store operations but they are lacking to a marked extent in other systems

Many dealers are evidently satisfied to make one complete turnover each week and do not realize the handicap resulting from the slower rate of turnover which involves greater shrinkage and waste because of the greater length of time meat remains in the shop.

Volume and its relation to fixed overhead expenses including full-time employment of clerks and meat cutters has not been studied by the average retail dealer. Several established retail dealers testified that when progressive cash-and-carry stores came into their neighborhoods they were obliged to bring their own methods of buying and salesmanship up to a new standard.

CUTTING TESTS

Practice has proven that frequent cutting tests constitute the only method by which a retailer can determine with accuracy whether the retail prices of the various portions of a carcass are adequate to return him a profit above the cost of the meat and his operating expenses. Yields of cuts vary with grade or quality. Yields

also vary between meat cutters, for no two cut exactly alike. Shrinkage is a factor and this is influenced by variations in seasons and climatic conditions. These variations therefore must be reckoned with. Because of local conditions and shifting of demand for certain cuts, frequent adjustments in prices are necessary in order to maintain a fair ratio between costs and retail prices. For these reasons no fixed chart of retail prices based on carcass cost and yields of retail cuts can be used with any degree of accuracy.

Most retail dealers have a knowledge of the variations, yet more than 50 per cent of those interviewed made no cutting tests. In only a small percentage of stores were cutting tests made with any degree of regularity and in a majority of the stores cutting tests were very infrequent or did not occur at all. Differences in percentage yields of cuts from carcasses of different grades are not understood to an appreciable extent. Some stores were found that base their prices merely on their competitor's prices with no accurate knowledge regarding price bases.

DISPROPORTIONATE DEMAND FOR CUTS

The apparent tendency on the part of customers to call chiefly for cuts that come from the hind quarters of beef carcasses has been a troublesome problem in the retail-trade meat for several years, and has resulted in a disproportionate demand for different cuts of meat.

Aside from the influence which seasons have on demand for roasting and boiling meats, the study showed that any disproportionate demand for steaks and chops as compared to the so-called cheaper cuts can not rightfully be charged entirely to consumers. Any marked lack of uniformity in movement of cuts was found to be due largely to the method of retailing. Salesmanship, initiative, and merchandising ability are involved. In all stores considered efficient, straight carcasses of fresh meats are usually purchased, and there are no accumulations. Some such stores were found in which more fore quarters than hind quarters are handled and the price spread between the so-called "preferred cuts" and the cheaper cuts is relatively narrow.

In one city studied several retailers stated that previous to the entrance of a chain-store system they had drifted into a routine method of selling in which fore quarters accumulated and remained a drag on the market. Some dealers did not even try to handle them. When two local units of a chain store were opened in 1920 these new stores at first handled fore quarters almost entirely. The first purchase for these stores comprised 65 medium-grade beef rattles (fore quarter minus rib cut) at 3 cents per pound wholesale. From these, stewing beef was sold at 5 cents, shoulder roast at 9 cents, and chuck steak at 10 cents. The 65 rattles were disposed of in two days. That date was said to have been the beginning of better merchandising methods by retail dealers generally in that city and most of them have profited by that demonstration of merchandising possibilities which is applicable in at least modified form to practically all classes of retail meat stores.

The only exceptions found were in the type of service stores located in districts of small apartment houses. In families in such districts, usually both man and wife work. Steaks and chops are the chief meat purchases because they can be quickly prepared. Here conditions seemed genuinely to discourage sales from the fore quarter.

SPREAD BETWEEN WHOLESALE COST AND RETAIL PRICES

The question of spread between the market value of live animals and retail prices of various cuts of meat is a vexatious one to the producer and is closely associated with the question of price determinations. Available comparisons of prices purporting to show the spread are in most cases based on retail prices of some of the so-called preferred cuts. This does not constitute a basis from which logical or sound conclusions can be drawn. Retail prices of all cuts must be included and an average price for the carcass must be determined.

Percentage yields of all retail cuts and gross results based on prices prevailing in a market in Washington, D. C., on the date the test was made are shown in Table 1. The test was made in a market which purchases straight carcasses only. Therefore an equal number of fores and hinds are used. The spread in prices as shown by this test compares favorably with comparisons made in numerous markets in different parts of the country which handled straight carcasses to advantage. This test should not be compared with other margins shown in cost studies covering all kinds of meats handled in a year's operations.

The reasons generally advanced for the spread in the past have put the burden of the responsibility on the consumer because of the disproportionate demand for certain cuts. This responsibility has now been shown to lie not entirely with the consumer. A large percentage of retailers are to blame, as the problem is partly caused by lack of initiative, salesmanship, and merchandising ability on the part of retailers.

Statistics gathered in this study showed that the efficient stores which, as a rule, handle a proportionate number of fore quarters and hind quarters are able to maintain a relatively close relation between prices of so-salled preferred cuts and prices of cheaper cuts, not usually out of proportion to wholesale cost. In the stores of owners who lacked a practical knowledge, the study showed either an unusually wide spread between prices of the cuts called for and wholesale costs, or showed a waste of edible meats from the so-called cheaper cuts. In at least one store doing a business close to $25,000 per year, monthly accounts covering fat, bone, and trimmings sold to rendering companies ran as high as $165. On the other hand, stores with like volume were found whose monthly accounts with renderers were as low as 94 cents. In the former instances the spread was unusually wide and in the latter instances they were unusually narrow.

TABLE 1.—*Wholesale and retail cutting test, close side steer beef, grade "good"*

Weight of side 310 pounds; quartered all ribs on fore quarter.
Weight of forequarter 163 pounds; percentage of side, 52.58.
Weight of hind quarter 147 pounds; percentage of side, 47.42.
Wholesale cost of side (310 pounds at 13 cents per pound)—$40.30.

YIELDS AND PERCENTAGE OF WHOLESALE AND RETAIL CUTS

WHOLESALE CUTS

Fore quarter	Weight (pounds)	Per cent of side	Hind quarter	Weight (pounds)	Per cent of side
Chuck (including neck)	63½	20.484	Loin (trimmed)	50	16.129
Rib (7 ribs)	30½	9.839	Sirloin tip	12	3.871
Plate and brisket	43	13.871	Round	72	23.226
Shank	25½	8.226	Flank	13	4.193
Cutting shrinkage	½	.161			
Total	163	52.581	Total	147	47.419

TABLE 1.—*Wholesale and retail cutting test, close side steer beef, grade "good"*—Continued

YIELDS AND PERCENTAGE OF WHOLESALE AND RETAIL CUTS—Continued

RETAIL CUTS

	Weight (pounds)	Per cent of side	Price	Total
Chuck, 63½ pounds:				
Chuck roasts	35	11.290	$0.16	$5.60
Cross rib roast	12¼	3.952	.22	2.70
Boneless neck	10	3.226	.12½	1.25
Lean trimmings	1	.323	.12½	.13
Bones	5¼	1.693	.00½	.03
Total	63½	20.484		9.71
Rib, 30½ pounds:				
Ribs (first and second cuts)	16½	5.323	.30	4.95
Ribs (third and fourth cuts)	13	4.193	.25	3.25
Bones	1	.323	.00	.00
Total	30½	9.839		8.20
Plate and brisket, 43 pounds:				
Roast (boned, rolled and tied)	11	3.548	.14	1.54
Lean trimmings	6¾	2.177	.12½	.84
Stew beef (plate)	20½	6.613	.10	2.05
Bones	2½	.807	.00½	.01
Brisket fat	2	.645	.00½	.01
Cutting waste	¼	.081		
Total	43	13.871		4.45
Shank, 25½ pounds:				
Shoulder clod	10¾	3.468	.22	2.37
Shank meat	4¾	1.532	.15	.71
Bones	9½	3.065	.00½	.05
Cutting waste	½	.161		
Total	25½	8.226		3.13
Loin, 50 pounds:				
Sirloin steak	25	8.064	.32	8.00
Porterhouse steak	14	4.516	.38	5.32
Suet	9½	3.065	.00½	.05
Bones	1½	.484	.00½	.01
Total	50	16.129		13.38
Sirloin tip, 12 pounds:				
Sirloin tip steak	8	2.580	.32	2.56
Tip roast	3¾	1.210	.28	1.05
Cutting waste	¼	.081		
Total	12	3.871		3.61
Round, 72 pounds:				
Bottom round steak	17¾	5.726	.25	4.44
Top round steak	19	6.129	.30	5.70
Horseshoe roast	6¼	2.016	.15	.94
Rump roast	15	4.839	.22	3.30
Lean trimmings	4	1.290	.12½	.50
Bones	10	3.226	.00½	.05
Total	72	23.226		14.93
Flank, 13 pounds:				
Flank steak	1	.323	.25	.25
Lean trimmings	8	2.580	.12½	1.00
Fat	4	1.290	.00½	.02
Total	13	4.193		1.27

Total retail sale value of side of beef	$58.68
Less wholesale cost of side	40.30
Gross margin (or profit)	18.38
Wholesale cost per pound	cents 13.00
Average retail price per pound	do 18.96
Gross percentage of margin (or profit) on costs	45.61
Gross percentage of margin (or profit) on sales	31.32

Another factor which contributed to the spread is that of ageing ribs and loins to an unreasonable degree. This involves varying degrees of trimming in proportion to length of time in storage and natural shrinkage. In the case of aged beef loins, trimming and shrinkage usually equal approximately 20 per cent of the original weight of the loin. This increases the spread proportionately. Conditions frequently arise in the large consuming centers when an abnormal demand for some cuts influences to a marked degree the wholesale price of the cut. For instance seasonal demands from hotels and restaurants for loins and ribs, particularly during a scarcity of the better grades, cause prices to advance sharply. Such a condition is illustrated by tests shown in Table 2.

TABLE 2.—*Cutting test on short loin of beef (untrimmed), "choice" grade, steer loin*

WEIGHT OF LOIN, 48 POUNDS; WHOLESALE COST, 42 CENTS PER POUND

Retail cuts	Weight		Per cent	Market value	Wholesale value per 100 pounds of loin for cut
	Pounds	Ounces			
Lean flank piece	1	03	2.47	$0.0700	$0.17
Trimmings (stale)	2	13	5.87	.0100	.06
Kidney		14	1.82	.1400	.26
Kidney suet	3	12	7.81	.0500	.39
Hip and pin bone steak	7		14.58	.5012	7.31
Porterhouse steak	22	14	47.66	.5012	23.89
Delmonico steak	9	08	19.79	.5012	9.92
Total	48		100.00		42.00

TEST ON TRIMMED STEAKS FROM SAME LOIN

	Weight		Per cent	Retail value per pound trimmed	Retail value per 100 pounds of rough steak	Retail value per pound untrimmed
	Pounds	Ounces				
Porterhouse, weight 22 pounds 14 ounces:						
Steak trimmed	15	10	68.31	$0.7132	$48.72	
Suet	6	5	27.59	.0500	1.38	
Bones		15	4.10	.0050	.02	
Total	22	14	100.00		50.12	$0.5012
Hip and pin bone, weight 7 pounds:						
Steak trimmed	5	8	78.57	.6273	49.29	
Fat	1	2	16.07	.0500	.8035	
Bones		6	5.36	.0050	.03	
Total	7		100.00		50.12	.5012
Delmonico, weight 9½ pounds:						
Steak trimmed	6	5	66.45	.7432	49.39	
Shop fat	2	11	28.28	.0250	.71	
Bones		8	5.27	.0050	.02	
Total	9	8	100.00		50.12	.5012

The test in Table 2 was made in New York City on the basis of wholesale cost of loins of comparable grade. The test shows the relative cost of each retail cut from the loin after due allowance has been made for market value of trimmings, suet, etc.

TABLE 3.—*Cutting test, steer-beef loin, grade "good" (not aged)*

[From side weighing 291 pounds. Weight of loin (including suet) 51 pounds. Percentage of side 17.527]

Retail cuts	Weight, pounds	Per cent of side	Retail value	
			Price	Total
Sirloin steak	22	7.560	$0.32	$7.04
Porterhouse steak	17½	6.014	.38	6.65
Kidney	1	.344	.15	.15
Suet	9½	3.265	.015	.14
Bones	1	.344	.005	
Total	51	17.527		13.98
Less wholesale cost 51 pounds at 22 cents				11.22
Gross margin				2.76
Gross percentage of profit on costs				24.59
Gross percentage of profit on sales				19.74

The test in Table 3 was made in Washington, D. C., in a market that handles straight carcasses only. The loin was cut from a good grade steer hind quarter and the prices of the several cuts are those charged customers on the day the test was made.

Table 4 shows results of a cutting test on one medium-grade steer carcass in New York City. This test was made to determine the cost to the retailer of each cut from which retail cuts having a different value are made. The table shows also the percentage of each cut to carcass weight.

TABLE 4.—*Cutting test on one medium-grade steer carcass*

WEIGHT OF CARCASS, 600 POUNDS; WHOLESALE PRICE, $14.75 PER HUNDREDWEIGHT

Cuts	Weight, pounds	Per cent to carcass weight	Cost based on relative market values	Relative value per 100 pounds for cut
2 top rounds	44	7.33	$0.20	$1.47
2 bottom rounds	47	7.83	.17	1.33
2 shins	28	4.67	.05	.23
2 top sirloins	28	4.67	.22	1.03
2 flanks	27	4.50	.06	.27
2 hips	39	6.50	.22	1.43
2 short loins	70	11.67	.27	3.15
1 hanging tender	1½	.25	.01	.00
2 ribs	59	9.83	.19	1.87
2 plates	56	9.33	.06	.56
2 shoulders	52	8.67	.10	.87
2 briskets	51	8.50	.13	1.11
2 necks	95	15.83	.10	1.58
Cutting shrink	2½	.42	.00	.00
Total	600	100.00		14.90

Quartered 1 rib on hind

MINOR FACTORS IN RETAIL TRADE

Among the minor factors that affect meat consumption which received attention in this study are use of meat substitutes and changes in living conditions and customs among consumers. These factors did not seem susceptible to usual statistical methods but information regarding the experiences of the dealers in relation to them was collected as well as the opinions of the dealers on the

subjects. The experiences and opinions tended strongly in one direction but there are no statistical records kept by retailers from which dealers or others can tell definitely what direction the trend of meat consumption is taking.

So many individual cases were cited to show a decreased purchase of meats by housekeepers in favor of some prepared food products that they seemed in the aggregate to form a factor to consider. Many dealers feel that the intensive national advertising campaigns that are back of these purchases are built on comparisons that are not substantiated by fact and that the campaigns are designed to curtail meat purchases in favor of these manufactured products.

Changing conditions and customs in American family life that affect meat consumption adversely, according to the majority of the dealers, include many tendencies. They believe that the increase in use of small apartments with little cooking space is increasing the tendency toward light housekeeping, as is the increased custom among married women to seek outside employment.

The monthly-installment payment plan inaugurated in recent years by some automobile manufacturers, which places the automobile within reach of all classes, has often resulted, the dealers believe, in stringent economy in the expenditure of funds for other purposes, particularly by those of limited means. Food budgets are pared and meat usually is the first to feel the effect.

The marked increase in use of automobiles has furnished a means of recreation that tends to lessen body requirements for heavy foods and it has facilitated the picnic meals which are usually accompanied by the use of limited quantities of meat and more of the substitutes.

Some dealers see in the marked increase in the delicatessen industry a deterrent to meat sales. These stores are found in sections of all cities. They are usually operated by foreigners who recognize no regular opening or closing schedule. In most cases they remain open until midnight and are open all day Sunday. The investigators found two that used the slogan, "We never close." The competition in the matter of hours can not be met by the meat stores.

Some packing-house products are offered through delicatessen stores, but the possibilities of this method of increasing sales of meat products generally has apparently not been studied thoroughly by the industry. The trend of distribution of most food products is is toward more compact package form. Many meat products should lend themselves readily to this method of distribution and delicatessen departments can be installed in most retail meat stores. A few were found in this survey but probably not more than 2 per cent of the stores studied have such a department.

RECOMMENDATIONS

The analysis of the factors involved in the study of methods and practices of retailing meats reveals certain weaknesses and deficiencies that are considered a detriment to the industry as a whole. Most of these deficiencies are recognized by modern and progressive dealers everywhere, and their cooperation toward eliminating them is assured. To that end the following recommendations are made:

Stringent enforcement of practical sanitary regulations should be urged by dealers. Most cities have ordinances governing sanitation

but in many cases enforcement has not been made effective. If the funds of the local department of health are insufficient for adequate enforcement, dealers should work to remedy this condition. Much can be done to better conditions in most cities through genuine cooperation between retail meat dealers and local health authorities.

The value and economy of adequate equipment and refrigeration as two essentials of success in retail meat distribution should be more thoroughly studied by the meat trade. Increased competition and modern methods of retailing meats have resulted in the adoption of time-saving devices, suitable display cases, and other features which tend to reduce shrinkage, waste, and labor costs, among many progressive operators, especially in certain sections, but many established markets are still endeavoring to operate with antiquated equipment and do not fully realize how much they are handicapped.

Adequate accounts and careful bookkeeping are an essential part of a well-equipped store. Many stores were studied in which records were either totally lacking or were very incomplete. No business can be operated successfully without adequate records. Many failures are due to lack of knowledge of the business and incomplete records. The retail meat industry needs to correct these deficiencies. The number of impractical operators engaged in the retail meat industry is far too great.

Every effort should be made to increase practical knowledge of the business among all members of the trade. The consensus of opinion of those who have an intimate knowledge of the business is that many of the difficulties connected with the retailing of meats, at present, are due to the high percentage of inexperienced operators engaged in the industry. The need for some corrective measures is apparent. One solution of the problem suggested by representative retail merchants in all cities where studies were made is a compulsory apprenticeship period for everyone who contemplates entering the retail meat business on his own account.

The industry should be rid of unscrupulous dealers. They constitute only a very small proportion of the total number of dealers, yet the effect of their methods both at their stores and in advertising is felt all through the industry. The well-informed are unanimous in the belief that this undesirable type of dealer has done more to create suspicion and uncertainty in the minds of consumers generally, regarding palatability of meat, than all other factors combined. Until this type of dealer has been eliminated or these practices corrected, full confidence of consumers in retail meat dealers can not be restored.

Meat dealers should take a genuine interest in teaching customers about meats. There are signs of an increased interest among consumers in learning about cuts and qualities and it is to the ultimate interest of the meat industry that retail dealers take an active part in helping customers to learn what constitutes quality in meat. Meats should be sold for what they are. When the customer relies upon the dealer's judgment as to quality, as some customers will always do, the dealer owes it to the industry as well as to the customer and to himself, to meet the responsibility squarely. Many meat dealers take a justifiable pride in the fact that their customers feel they can rely upon them for good judgment and advice in regard to purchases.

Selling meats by grades is recommended as an effective step toward attaining many desirable ends in the meat industry. It will tend to eliminate undesirable advertising, substitution, and deception, and will increase knowledge of meats among both the retail trade and the buying public. It will tend to clarify the whole uncertainty regarding kinds and qualities of meats that is now exerting a deterrent effect on the retail trade.

Local associations comprising both retail grocery men and meat dealers of exceptionally high character and ability are active in most cities. In every case they stand for honest methods, are doing effective work along educational lines, and are raising the standard of merchandising. These associations have marked opportunities in the direction of all these recommendations. For instance, efficient and progressive retail dealers everywhere, associations of retail dealers, and many livestock organizations advocate that all meats be sold by grades. Many advocate legislation as a corrective measure in the case of dishonest dealing. Others advocate compulsory apprenticeship before entering the trade as a measure to improve and maintain standards. If local associations will concentrate their efforts on the outstanding needs and work to secure their solution they will gradually benefit the entire industry.

The value of cooperative effort is not fully appreciated by the industry at large. Scores of individual dealers are concerned only with their immediate problems, therefore take no interest in the affairs of local associations or problems which confront the industry. This is one phase which many dealers need to consider seriously.

ORGANIZATION OF THE UNITED STATES DEPARTMENT OF AGRICULTURE

November 13, 1926

Secretary of Agriculture	W. M. JARDINE.
Assistant Secretary	R. W. DUNLAP.
Director of Scientific Work	A. F. WOODS.
Director of Regulatory Work	WALTER G. CAMPBELL.
Director of Extension Work	C. W. WARBURTON.
Director of Information	NELSON ANTRIM CRAWFORD.
Director of Personnel and Business Administration	W. W. STOCKBERGER.
Solicitor	R. W. WILLIAMS.
Weather Bureau	CHARLES F. MARVIN, *Chief.*
Bureau of Agricultural Economics	LLOYD S. TENNY, *Acting Chief.*
Bureau of Animal Industry	JOHN R. MOHLER, *Chief.*
Bureau of Plant Industry	WILLIAM A. TAYLOR, *Chief.*
Forest Service	W. B. GREELEY, *Chief.*
Bureau of Chemistry	C. A. BROWNE, *Chief.*
Bureau of Soils	MILTON WHITNEY, *Chief*
Bureau of Entomology	L. O. HOWARD, *Chief.*
Bureau of Biologocal Survey	E. W. NELSON, *Chief.*
Bureau of Public Roads	THOMAS H. MACDONALD, *Chief.*
Bureau of Home Economics	LOUISE STANLEY, *Chief.*
Bureau of Dairy Industry	C. W. LARSON, *Chief.*
Office of Experiment Stations	E. W. ALLEN, *Chief.*
Office of Cooperative Extension Work	C. B. SMITH, *Chief.*
Library	CLARIBEL R. BARNETT, *Librarian.*
Federal Horticultural Board	C. L. MARLATT, *Chairman.*
Insecticide and Fungicide Board	J. K. HAYWOOD, *Chairman.*
Packers and Stockyards Administration	JOHN T. CAINE III, *in Charge.*
Grain Futures Administration	J. W. T. DUVEL, *in Charge.*

This bulletin is a contribution from

Bureau of Agricultural Economics	LLOYD S. TENNY, *Acting Chief.*
Division of Livestock, Meats, and Wool	C. V. WHALIN, *Assistant Chief Market Specialist, in Charge.*

ADDITIONAL COPIES
OF THIS PUBLICATION MAY BE PROCURED FROM
THE SUPERINTENDENT OF DOCUMENTS
GOVERNMENT PRINTING OFFICE
WASHINGTON, D. C.
AT
10 CENTS PER COPY

▽